DETAILED ACTION

Response to Amendment

Applicant's amendment to the claims filed January 28, 2008 has been entered. Claims 1, 7, 8, and 13 are currently amended. Claims 3, 9-12, and 19-21 have been canceled. Claims 1, 2, 4-8, and 13-18 are pending and under examination.

Claim Objections

Claim 1 is objected to because of the following informalities: In claim 1, line 4, the first use of the word "product" should be - - produce - - . Appropriate correction is required.

Claim 18 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. Claim 1 recites the polymer is cellulose triacetate while claim 18, which depends from claim 1, recites a generic cellulose acylate.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1, 2, 4-8 and 13-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takeda et al. (US 2001/0009312) in view of Shimizu et al. (US 2002/0102369)

Regarding claim 1, Takeda teaches a solution casting method for producing a cellulose acylate film from a dope solution containing a polymer and a solvent (abstract) comprising the

steps: casting the dope solution from a casting die on a substrate/metal belt to form a gel-like film (paragraph [0083]; and Figure 1, elements (1), (2), (3)), drawing the film in a tangential direction of the substrate/metal belt to peel the film from the substrate at a speed of at least 10 m/min (paragraph [0083]; Figure 1, elements (4), (2'); Figure 2, note element 2' relative to elements (3) and (34); and paragraph [0016], teaching that speeds of up to 40 m/min are conventional and demonstrating speeds of 40 m/min to 120 m/min); regulating to less than 20 mm a movement in which a peeling position of the film moves on the substrate (paragraphs [0026], [0027], [0042], [0092], [0104-0105] and [0113]), and drying the peeled gel to obtain the polymer film (paragraph [0083]) wherein a peeling roller is used for peeling said gel-like film (Figure 1, elements (4)). Takeda discloses production of a cellulose triacetate film (paragraph [0007, 0101]).

Takeda teaches that the quality of the produced film is better when the fluctuation, relative to the peeling point, is less than 20 mm (paragraphs [0104, 0105, and 0113]. Takeda additionally teaches that the peeling roll is adjusted in a vertical direction (see Figure 7, element (44), for example) to produce a high quality film by maintaining a constant angle formed by the web with the metal support (paragraph [0026]).

Further, Takeda teaches that the amount of solvent remaining in the film when the peeling force is applied to remove the film from the substrate/metal belt impacts the quality of the film produced. Takeda also teaches there are discrete ranges of solvent levels where the quality of the film is different (see paragraphs [0004], [0092]) showing that good results are conventionally achieved at solvent levels of less than 40% (paragraph [0004]). Takeda does not teach the claimed film thickness or the specific claimed weight percentage of solvent (i.e. 5-30%) resulting from a quality determination step as claimed.

However, Shimizu et al. teach a method of producing a cellulose triacetate film (paragraph [0074]) within a thickness range of 30 to 150 um, preferably 35 to 85 um (paragraph [0069]. In particular, Shimizu et al. exemplify a cellulose triacetate film having a thickness of 40 um (paragraph [0205]). Shimizu et al. further disclose the level of residual solvent in the film during peeling can be in the range of 5 to 150%, preferably in the range of 10 to 120% (paragraph [0180]). In particular, Shimizu et al. exemplify a residual solvent level of 25% during peeling (paragraph [0205])

Furthermore, Shimizu et al. disclose that the remaining amount of solvent at peel is a result effective variable that impacts wrinkles, flatness, the ability to peel the film, film forming speed, and other variables, and that the amount of solvent remaining during peel is determined so that productivity and quality are balanced (paragraphs [0179-0180]).

Therefore it would have been *prima facie* obvious to one having ordinary skill in the art at the time of the claimed invention to have employed the solvent levels and film thicknesses disclosed by Shimizu et al. to practice the method disclosed by Takada et al. (e.g. conventional solution casting with teaching directed to controlled movement of the film at peeling) for the purpose of producing a high-quality wrinkle free film (Shimizu et al. paragraphs [0179-0180]) having a wide range of commercial applications.

As to claim 2, Takeda teaches that the peeling roll is adjusted to maintain a constant angle formed by the web with the substrate/metal belt (paragraph [0026]). In view of the teaching of Takeda to constantly maintain the angle, it is understood that constantly means the angle is being controlled, which means the angle is moving, at least four times in one second. Further, the examiner notes that claim 2 does not appear to include a manipulative step.

As to claim 4, Takeda teaches that the film contacts the peeling roller just after the peeling off of the film from the substrate/metal belt (paragraph [0012]). Additionally, Takeda

teaches the web contacts the roll within 5 seconds, more preferably within 3 seconds after being peeled from the substrate/metal belt [paragraph [0076]). Further, Takada teaches movement of the adjustable peeling roll, on the order of magnitude of 100 mm (paragraph [0127]). At speeds of 40 m/min – 120 m/min, the calculated length of the internal common tangent of the peeling roller and the substrate/metal belt ranges from 0 mm – 10,000 mm. Takada's teaching clearly is toward the low end of the range. One having ordinary skill would have been motivated at the time of the invention to minimize the amount of time the film were unsupported to prevent excessive sag, film breakage and to provide the film with good support (paragraph [0005]).

As to claim 5, Takeda teaches the substrate is adjusted in the range of 10 °C to 40 °C (paragraph [0074], teaches a range of 0 °C to 50 °C, and [0101], provides an example at 10 °C).

As to claim 6, Takada teaches a preferable peeling speed of up to 120 m/min (paragraph [0016]). The claimed range is 0 – 150 m/min. Takeda teaches a speed within the claimed range.

As to claim 7, Shimizu et al. exemplify a period of time of 3 minutes prior to peeling (paragraph [0205]). It would have been obvious to one having ordinary skill to have optimized the time on the belt for the purpose of achieving a desired balance between productivity and quality.

As to claim 8, Takeda teaches the substrate/belt temperature is in the range from 0 °C to 50 °C. This would implicitly heat the film to a temperature within the claimed range. As such, the claimed range and the range of the prior art overlap. Further, Shimizu et al. disclose temperatures within the claimed range (paragraphs [0179-0180, 0205]).

As to claim 13, Takeda teaches that the film contacts the peeling roller just after the peeling off of the film from the substrate/metal belt (paragraph [0012]).

As to claim 14, Shimizu et al. employ plasticizers (paragraph [0171]). The examiner notes that employment of release agents is conventional in the art (Shimizu et al. paragraph [0004]).

As to claims 15 and 16, Takeda teaches the solvent is a mixture containing dichloromethane/methylene chloride and alcohol/ethanol and that the alcohol/ethanol is at more than 8 wt. % (paragraph [0101]). Takeda also teaches that the alcohol has from 1 to 4 carbon atoms (paragraph [0082]).

As to claim 17, Shimizu et al. employ acidic materials [paragraphs [0093-0094]). It would have been obvious to one having ordinary skill in the art to have employed acidic materials as suggested by Shimizu et al. for the purpose of achieving desired final product properties for a variety of commercial applications.

As to claim 18, Takada teaches the polymer is cellulose acylate (paragraph [0007]) including cellulose triacetate (paragraph [0101).

Response to Arguments

Applicant's arguments filed January 28, 2008 have been fully considered, but are moot in view of the new grounds of rejection necessitated by the amendment to the claims. In particular, applicant's amendment directed to the thickness of the film in combination with limiting the film to a cellulose triacetate film required the new grounds of rejection. However, similar to the withdrawn Shibue et al. reference, the currently applied Shimizu et al. reference teaches and suggests that the residual amount of solvent remaining in the film at peeling is a result effective variable. Further, Shimizu et al. disclose solvent levels as low as 5% are suitable, thereby meeting the lower level of the claimed solvent range at peeling and further

exemplify peeling at a 25% remaining solvent level, thereby meeting a value within the broadly claimed range of 5-30% that results from the determination step.

Shimizu et al. disclose that the remaining amount of solvent at peel is a result effective variable that impacts wrinkles, flatness, the ability to peel the film, film forming speed, and other variables, and that the amount of solvent remaining during peel is determined so that productivity and quality are balanced (paragraphs [0179-0180]). This determination process of Shimizu et al. is understood to meet the determination process set forth in claim 1. Furthermore, the examiner notes that Shimizu et al. monitor the winding tension in the film (paragraph [0205]) and that the determination process of Shimizu et al. concludes with employing levels of solvent meeting the levels of solvent claimed. As such, the examiner submits that the combination set forth above is proper and renders the claims obvious.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeff Wollschlager whose telephone number is (571)272-8937. The examiner can normally be reached on Monday - Thursday 6:45 - 4:15, alternating Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Christina Johnson can be reached on 571-272-1176. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/J. W./
Examiner, Art Unit 1791

April 16, 2008

/Monica A Huson/
Primary Examiner, Art Unit 1791